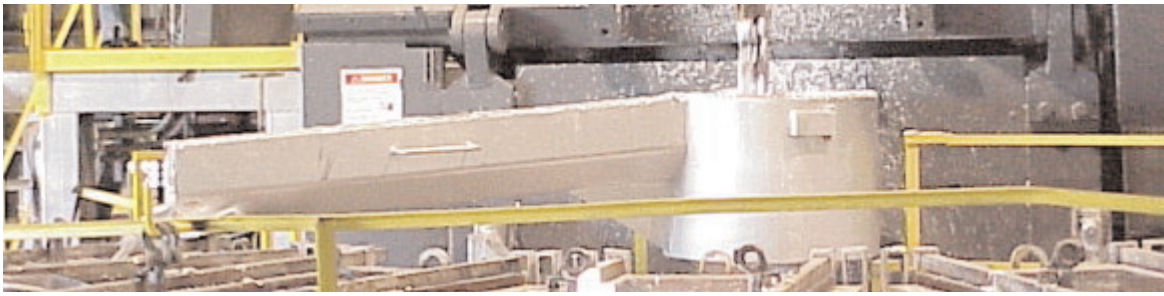
Shedding Light on Energy: How Supply and Costs Affect Business Decisions

Eastern Alloys is the world's largest supplier of a product called Galvalume, an anti-rusting agent used by the automotive industry. Like many products, the making of Galvalume requires a lot of power. At Eastern Alloys' Henderson, Kentucky plant, it takes a hefty surge of 1750 kilowatthours of electricity each day to stay in production. "Without dependable and affordable electricity, companies can't keep product moving," said Jon Taylor, plant manager of Eastern Alloys.

Electrical connections, natural gas pipelines and water supply. Energy is the stuff of everyday life for many company decision-makers. With it, production can run smoothly. Without it, production halts, people stop work, deadlines are missed, and sales cease. It is very serious stuff indeed when the supply or quality of power becomes unpredictable or the price of energy rises through the roof, destroying budgets as it goes.

Some business experts and planners predict that in the near future energy issues will become even more critical: businesses are still reeling from their recent experiences with lack of availability during the brownouts in California and the Northwest. High energy prices continue to plague businesses in the North and West as economic pressures build. Utilities too are under pressure to significantly upgrade security procedures following the terrorist attacks in New York and Washington. Such costs are likely to be passed along to business and residential consumers. Perhaps even more threatening now is whether political tensions in the Middle East and the war in Iraq will intensify the uncertainty of continued supply.

Getting and paying for power is critical, but some power is more equal than others. When weighing supply and cost of energy, businesses look closely at all aspects of natural gas, water, and electricity. Since natural gas is deregulated virtually throughout the country, the business can choose to buy locally or from anywhere in the country through a broker or marketer, thus assuring competitive prices. Availability is often determined by the proximity of the site to interstate pipelines that carry natural gas from the Gulf states. Water is of less concern since



prices are typically low in many states. However, availability and quality of water becomes of great concern.

But often it is electricity costs and reliability that becomes the most telling of issues for businesses. Leaders look at the 2001 California experience and worry that similar loss of supply or escalating prices could affect them at any time. Electric bills are rising, according to a recent study of electric utility business customers, conducted annually by J.D. Power. The study found that the bills of mid-size businesses increased 9 percent during 2002. The rise, coupled with a weakened economy, has focused attention on the cost of power and how to get it more cheaply.

While not a mid-size business, costs are still key for Eastern Alloys and throughout the aluminum industry, said Taylor. "My electric cost is significant, about $30,000 or $40,000 monthly." He said. "But at our parent plant in New York, the electric rate is double what I pay in Kentucky. I can run the same product as the New York plant does for a penny a pound less and that gives me a huge advantage. That's why all the big plants like Alcan and Alcoa are sitting right here in Western Kentucky."

For Silrec Corporation, the price of power is important, but company officials equally value reliability. Founded in 1986, the company manufactures silicon wafers and recycles silicon products for the semiconductor and solar power industries and has been based in Silicon Valley in San Jose, California. The company now is moving its operations to Lexington, Kentucky.

Executive Vice President Mark Adams cited energy costs as a key factor in the company's decision to make the move, but he also worried about the reliability of the supply.

"For us, the stability of the energy supply is as critical as the price," he said. "We can't have situations where we suddenly lose power without warning or have to turn equipment off at certain times," situations, Adams said, that hammered the company in California during the state's energy crisis in 2001. "The power outages that we have experienced have been difficult to predict and difficult to deal with," he said.

Location. Location. Location.

An increasingly competitive business environment compels companies more than ever before to challenge every line item and to look for new ways to improve efficiencies with fewer resources. As decision-makers analyze all cost factors, they often discover that the information tells them more than how to do business; it often helps pinpoint where to do business. Some companies, like Silrec, reach a point when a combination of factors – energy included – lead them to consider relocating the business elsewhere. Many factors play into the final location decision: availability of skilled labor, the cost of that labor, tax exemptions and other incentives assembled by state and local governments, highway accessibility, regulations… the list goes on. But right up there near the top is always the issue of energy availability and cost.

As companies consider a move or expansion, how much does the cost of energy enter into the matrix? Significantly, according to Eastern Alloys' Taylor. Eastern Alloys built the Henderson plant on the Ohio River in Western Kentucky in 2001 after operating a single facility in New York for more than 30 years. While Taylor was not part of Eastern Alloys as the decision was made to move to Kentucky, he recognizes that energy cost played an important part for the site selection team. He ranks energy issues in the top two or three decision-makers. "For us, the first is overall location, then the cost of transporting product to customer, then energy costs," Taylor said.

Silrec too looked at the cost savings in energy when considering their move."To compete with overseas companies, we have to operate on a tight profit margin," Adams said. "If we are consistently having to raise our prices to customers to cover rising energy costs, they will find other markets to buy from."

Adams expects the move to Kentucky to reduce gross costs by about 10 percent. "We are getting about a 50 percent savings in our overall utility cost, and a big part of that is electric per kilowatthour, so that has a major impact on our budget," he said. "We have a lot of machinery that uses a lot of electrical power. As our business grows, our energy consumption will grow as well. That is one reason why Kentucky was very attractive to us."

Silrec also took into account the cost of energy to employees. "The company isn't the only one that has to pay high energy costs," he said. "Our employees pay electric bills too. Their quality of life goes up because they are spending less on utility bills at home."

Crunching the Numbers

As companies consider energy costs in the context of relocating existing or building new businesses, most follow similar steps to do the research and analysis necessary to make solid decisions. And they look for readily available resources to help them make the final decisions. "Economic development agencies and utilities throughout the country obviously are eager to work closely with prospective clients," said Gene Strong, secretary of the Kentucky Cabinet for Economic Development. "In Kentucky, we provide a wealth of information about power for companies considering us in the site selection process. And we are often asked about it since we have been ranked the least expensive for industrial users of electricity, Strong said."

How do companies start down the energy comparison path? The following are typical steps recommended by energy experts.

1. Evaluate company's need

Many experts suggest that companies begin the process at home with either an internal energy audit or an analysis of power needs and priorities.

Dana Corporation does just that. With more than 320 major facilities throughout the world, Dana is one of the largest suppliers to vehicular manufacturers and their related aftermarkets. With such wide-spread operations, site selection is an ongoing process. The company has built 14 separate facilities in Kentucky alone.

"We begin the process by working with our operating units to find out if they have any special utility needs," said Phil Zmuda, Senior Manager of Real Estate Transactions for Dana. "We always get an estimate of the yearly consumption, so we have those in hand when we go out to visit sites." He believes that this step is particularly important if Dana is building a completely new facility, a greenfield site, rather than retooling an existing site. "We then ask the operating unit to provide information from a similar facility, so we have a basis of comparison," he said.

"If the facility that we are planning is a high use electric plant, then we focus on the cost, current availability and, in a deregulated market, the ability to transmit power to the community from other sources," he said. "Our truck frame plant in Elizabethtown, Kentucky falls into that category, so we were very specific in our needs and expectations when we met with the utilities in the community."

2. Do the research.

Once most companies and their site selection professionals are armed with their energy needs and have determined their other priorities, Zmuda recommends they start by contacting the main economic development agency in the states under consideration. "I use the state economic development group as a one-stop shopping source whenever possible," he said. "If the state agency has a good relationship with the local communities, it makes my research much easier. They then will request specific information that I need from the local communities. By using that one source as a clearinghouse of information, I don't need to seek information or confidentiality from multiple sources."

The state economic development officials then will contact utilities in the potential communities. Utilities often work in concert with the economic development officials in actively recruiting companies to their communities with the possibility of expanding their customer base. They readily provide information about costs and can provide a cost comparison, using the company's own utility bill. In Kentucky, officials usually ask the prospective company to provide their most recent utility bills. The local utility then runs a comparative cost analysis so the company can see how much it would cost them in Kentucky versus their existing location.

"Our plants are definitely high energy consumption facilities, so anticipating cost is very important to us," said Zmuda. "In the site selection process, we always ask local communities to price utility costs on an annual basis, and the low rate in Elizabethtown was a major factor in selecting that city to locate a plant.

In addition to cost, utilities are routinely asked to provide information about specific sites, including the location of the nearest transmission line and substation, the electrical size lines, gas pressure in the area, the number of outages and lengths of outages in a year, fees associated with line extensions, and energy and government incentives or tax breaks. "We try to be a real resource for potential companies," said Lisa Payne, Economic Development Executive for LG&E Energy Corporation, Kentucky's largest utility. "Whatever step the company wants to take, we follow their lead."

The approach is similar at East Kentucky Power Cooperative which serves 89 of Kentucky's 120 counties through 16 rural distribution co-ops. "We'll determine what a client's electrical requirements will be and then work through our local distribution cooperative to meet their specific needs," said Jim Coleman, Manager of Industrial Development. "If a client is focused on a specific site, we'll determine if we have correct service to that site or what we need to do to bring it up to requirements," he added.

Jerry Carter, Senior Manager of Energy Services for Dana Corporation, is impressed with the amount of information available about local communities. "Utilities are an important resource," he said. "It is truly amazing the statistics they keep. I've had situations in which I ask how many outages occurred in a given year. The utilities not only provide the information but they know how many of those outages were due to squirrels on the line."

Zmuda suggests that companies considering a move or expansion make sure they are requesting the same information of all communities being considered. "We want everybody answering the same questions," he said. "The questions generally center around cost, reliability and flexibility in terms of guaranteed supply.

3. Evaluate Price Comparisons

Deregulation of electricity in some states has allowed large companies with multiple sites to look at energy needs across the entire company. Where possible, far-flung facilities now have the ability to share costs through various utility transmission systems. "There are regions of the country where Dana has two or three smaller facilities," Carter said. "On their own, they may not have much leverage with the local gas market or the local utility. But we can aggregate them and have more impact on pricing."

At the present time, however, only about 10 states have active deregulated electricity markets, limiting the ability of companies to aggregate. Indeed, some energy experts believe that the number of deregulated states is unlikely to increase in the near future until energy agencies and regulatory bodies are assured that states will not experience California's 2001 energy problems.

According to Coleman of East Kentucky Power, the goal of any utility is to provide reliable service at the lowest cost rates. "We can provide low cost rates through the use of Kentucky coal," he said noting that East Kentucky Power also derives significant energy from two major hydroelectric dams. "Also, being in a regulated environment makes our rates guaranteed, which is very appealing to customers," said Payne of LG&E. Typically, in regulated markets, every company falls under some category of tariff or cost that has been

approved by the state regulatory agency. "Customers fit under specific tariffs depending on their load usage," she said. Tariffs include many different variables such as whether the company is a start-up with loads of 5,000 kw or less, whether the company requires guaranteed service 24 hours a day/seven days a week, or whether the company can live with interruptable service at certain times or plans their usage during off peak hours. "After their load profile is established, then we can see where they can fit into the regulated environment as well as give them the lowest rate possible," she said.

For larger potential customers, many states and local governments will provide analyses of the impact of incentive packages available such as reduced energy costs for big users of power or for companies that can maintain high levels of energy efficiency. While incentives may be attractive, for Phil Zmuda, they are not the primary decision maker. "Incentives are not one of the main factors we look at," he said. "Of the top 15 items in the site selection process, I rank incentives fairly low on the list. We only look at them after we have made a sound business decision that a location is the best place for us to be, based on the priorities we have established."

4. Evaluate Fluctuations in Supply

As most companies noted, fluctuations in the reliability of supply can be as damaging as continually rising cost. Again, companies look to local utilities and economic development agencies to provide historic data about supply and outages.

Zmuda ranks supply as a key concern for Dana Corporation. "Sometimes the cost of the local power isn't as important as the ability to transmit to our locations," he said. Discussions of transmission capacity are critical to companies like Dana because they want to know at what point a local electric utility must go outside its own generation to provide power and what direct impact that has on the company's production and cost. "We ask utilities to identify and provide a history of the substation and feed coming into the property. Sometimes we seek a dual feed so we can be assured of backup, perhaps even from a different substation," he said.

Businesses also want to know whether they can count on reliable natural gas supply from local utilities or from other sources. "Capacity may include the size of a natural gas pipe into a town or region we are considering," said Jerry Carter. "If the town has high hopes of luring industry to its region, but only has a pipe suitable to handle a few large consumers, we would check their ability to increase this part of the supply chain."

Zmuda also recommends that companies ask questions about the quality of the power. "Sometimes the siting of a potential piece of property lends itself to plenty of power, but it may be at the end of the line which can translate into variations in power at certain times of the day," he said.

5. Consider Expansion Needs

Dana Corporation and Silrec both looked to the future as well as the present in assessing their energy needs. "Because of the possibility of growth, we look closely at the transmission capability at a potential piece of property, " said Zmuda of Dana Corporation. "We want

to avoid a situation where we invest in building a facility, then find out that we can't expand because there is no capacity. We check that very carefully in our selection process."

Taylor of Eastern Alloys watches the future as well. He takes comfort in the fact that Kentucky utility companies are selling surplus energy to other states. "That tells me that we could expand in the future without any problem in supply," he said.
For Silrec, anticipating future needs was a must. "We are a small company, but we are planning for a lot of growth in the next few years,"Adams said. "When we started looking at a five-year growth plan, we took into consideration the price of energy and the possibility of price increases. At that point, we realized that if we stayed where we were, we would not be profitable. If we moved, we would be."

Utilities continue to have a role for companies considering expansion. "Obviously a company wants to know that their service will be available in 5-10 years," Payne said. "Expanding companies work with our account managers to determine approximate needs throughout the years. Also we can offer programs like an energy audit to determine areas in which they can save by greater efficiency."

Keeping the Power On

Getting power initially is only the first stage in an ongoing process. Keeping it constant and reasonably priced is ongoing throughout the life of the facility. For large companies, energy managers such as Jerry Carter continue to play critical roles long after the plant is built. Smaller companies rely on information from local utilities or energy brokers.

Zmuda sees energy in two phases. "We have the initial process of physically determining a location for the plant, and energy certainly plays a part in that decision," he said. "But once we are operational, then we continually do what we can to improve the process of purchasing energy, whether that is trying to aggregate or see if there are other ways to decrease costs."

Companies such as Dana, Eastern Alloys and Silrec carefully monitor energy needs. They continue to work with local economic development officials and utilities to find new ways to meet their energy needs. They anxiously wait and watch to see how energy will play out on the international political scene and what impact that will have on their business. They explore cost cutting measures or improved efficiencies. And, occasionally, energy costs, coupled with other demands, may lead them to seek a new home for their business.

Whatever the outcome, it is certain that energy needs, cost and reliability will continue to be of key importance to companies throughout the world, for, without it, production stops. "Businesses can hire and train the world's best employees and continually test and improve upon the efficiency of their processes, but it won't matter if the power doesn't come on or escalating prices impact our budget," said Taylor.

Shopping Energy: Questions to Consider

How does the state rank in terms of electric cost per kilowatthour?

Is electricity in the state regulated or deregulated?

Can the energy providers offer incentive contracts for large industrial and commercial customers?

Rate reductions?

Can providers guarantee a ready supply of power?

Is the state located near natural gas interstate pipeline systems?

Have industrial users experienced brownouts or blackouts in the last five years?

How Much Does Power Cost?

The average price of electricity in the U.S. for industrial customers is 6.81 cents per kilowatthour. (Source: Energy Information Administration)

The Highest Cost States	*The Lowest Cost States*
Hawaii	Kentucky
New Hampshire	Idaho
Rhode Island	Washington
New Jersey	Utah
Massachusetts	Wyoming

About this White Paper

Author Vicki Dennis is a writer based in Louisville, Kentucky who has collaborated on numerous projects with corporate and governmental partners including the Kentucky Cabinet for Economic Development (KCED).

This document was prepared on behalf of KCED which is the primary state agency in Kentucky responsible for creating new jobs and investment in the state. Additional information on energy costs and other issues of concern to business can be found on the KCED web site at www.thinkkentucky.com.